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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,603	10/10/2003	Nazim Z. Muradov	UCF-269DIV	1031
23717	7590	04/25/2006	EXAMINER	
LAW OFFICES OF BRIAN S STEINBERGER 101 BREVARD AVENUE COCOA, FL 32922			ALEJANDRO, RAYMOND	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/683,603

Applicant(s)

MURADOV, NAZIM Z.

Examiner

Raymond Alejandro

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10/10/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 15-19 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) 15-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/10/03 4-2-01
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 15-19, drawn to an apparatus for sustainable production of hydrogen, classified in class 208/52R, or 422/187 or 48/127.9 or 423/651.
  - II. Claims 21-26, drawn to an apparatus for generating electricity, classified in class 429, subclass 19.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination of Group II does not require the specific subcombination (i.e. the specific apparatus for production of hydrogen) for operation and patentability. For example, the combination of Group II (i.e. the fuel cell) can either use a fluidized bed containing Ni-catalyst; or a non-fluidized bed reactor; and or any other apparatus for the production of hydrogen not employing thermo-catalytic reactions such as autothermal reformers, or partial oxidation reactors or steam reformers. The subcombination has separate utility such as producing hydrogen from hydrocarbons.

Art Unit: 1745

3. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Brian S. Steinberger on 03/23/06 a provisional election was made with traverse to prosecute the invention of Group II, claims 21-26. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Priority***

7. This application is a division of Application No. 09/824437, filed 04/02/01.

8. Acknowledgment is made of applicant's claim for domestic priority under 35 U.S.C. 119(e).

***Information Disclosure Statement***

9. The information disclosure statement (IDS) submitted on 10/10/03 was considered by the examiner.

***Drawings***

10. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1" has been used to designate "the thermocatalytic reactor" and "the catalytic reactor" and "the fluidized bed reactor". Applicant is requested to employ consistent terminology. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

11. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Art Unit: 1745

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," "This invention relates" etc.

12. The preliminary amendment of 10/10/03 does not introduce new matter into the disclosure.

13. The disclosure is objected to because of the following informalities: the current status of the parent application (whether abandoned or patented and its patent #) should be included.

Appropriate correction is required.

#### ***Claim Objections***

14. Claim 24 is objected to because of the following informalities: the terms in line 3 should immediately follow the last term of line 2 (line 2 of the present claim contains a blank space).

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 22 and 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17. Claim 22 recites the limitation "the moving bed reactor" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 1745

18. Claim 24 recites the limitation "the means of recovering pure hydrogen" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "*means for*".

19. Claim 25 recites the limitation "the means of disintegration" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "*means for*".

20. Claim 26 recites the limitation "the means of transporting and generating electricity" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. Claim 21 recites "*means for*". It is further noted that claim 21 does not contain an earlier recitation of "*a mean for generating electricity*" per se.

### ***Double Patenting***

21. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

22. Claims 21, 23-24 and 26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 9-10, 12, 20-21 and 23-24 of U.S. Patent

Art Unit: 1745

No. 6653005. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

The US Patent'005 claims the following (CLAIMS 1-3, 9-10, 12, 20-21 and 23-24):

1. A hydrogen generator-fuel cell apparatus, comprising:
  - a) a reaction chamber having a single reaction zone;
  - b) means for providing heat input into said reaction chamber;
  - c) a catalytic material for decomposition of hydrocarbons;
  - d) means for storing and introducing a hydrocarbon fuel into said reaction chamber;
  - e) a hydrogen selective membrane for purifying hydrogen produced in said reaction chamber;
  - f) a fuel cell containing at least one electrochemical cell;
  - g) the electrochemical cell having an anode and a cathode separated by a membrane; and
  - h) an outlet for delivering hydrogen from said reaction chamber to said fuel cell wherein hydrocarbon pyrolysis reaction takes place in the single reaction zone without oxidizers in the reaction chamber.
2. The apparatus of claim 1, wherein said catalytic material is a high surface material greater than about 1 m<sup>2</sup>/g.
3. The apparatus of claim 2, wherein said catalytic material is activated carbon having surface area higher than about 100 m<sup>2</sup>/g.
9. The apparatus of claim 1, wherein said fuel cell is a polymer electrolyte fuel cell.
10. The apparatus of claim 1, further comprising:
  - an inlet for charging said catalytic material into said reaction chamber and dislodging carbon product from said reaction chamber.
12. A hydrogen generator-fuel cell apparatus, comprising:
  - a) a reaction chamber having a single reaction zone;
  - b) means for providing heat input into said reaction chamber;
  - c) means for storing and introducing a hydrocarbon fuel into said reaction chamber;
  - d) a first layer of catalytic material for decomposition of said hydrocarbon fuel;
  - e) a second layer of catalytic material for increasing hydrogen concentration in the first layer and production of filamentous carbon;
  - f) a fuel cell containing at least one electrochemical cell;
  - g) said electrochemical cell containing an anode and a cathode separated by a membrane; and,
  - h) an outlet for delivering hydrogen from said reaction chamber to said fuel cell wherein hydrocarbon pyrolysis reaction takes place in the single reaction zone without oxidizers in the reaction chamber.



Art Unit: 1745

20. The apparatus of claim 12, wherein said fuel cell is a polymer electrolyte fuel cell.

21. The apparatus of claim 12, further comprising:  
an inlet for charging said catalytic material into said reaction chamber and dislodging carbon product from said reaction chamber.

23. A compact and portable integrated hydrogen generator-fuel cell apparatus, comprising:

- i) a reaction chamber having a single reaction zone;
- j) means for storing and introducing a fuel into said reaction chamber;
- k) a high temperature fuel cell which is thermally and spatially integrated with said reaction chamber;
- l) a catalytic material for production of gaseous fuel for said fuel cell in said reaction chamber;
- m) a compressor for recirculating gaseous products between said reaction chamber and said fuel cell;
- n) said fuel cell containing at least one electrochemical cell;
- o) said electrochemical cell containing an anode and a cathode separated by a membrane; and
- p) a connector for delivering gaseous fuel from said reaction chamber to said fuel cell, wherein hydrocarbon pyrolysis reaction takes place in the single reaction zone without oxidizers in the reaction chamber.

24. The apparatus of claim 23, wherein said catalytic material is an activated carbon with a surface area higher than about 100 m<sup>2</sup>/g.

*In this instance, the claims of the US Patent '005 fully encompasses or anticipates the claimed subject matter of the application claims.*

### ***Claim Rejections - 35 USC § 102***

23. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

24. Claims 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Giir et al

5376469.

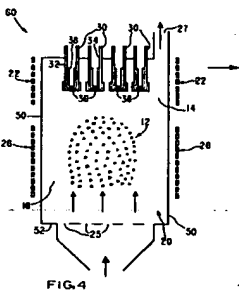
Art Unit: 1745

The present application is geared toward an apparatus for generating electricity and producing carbon wherein the disclosed inventive concept comprises the specific thermocatalytic reactor.

As to claim 21:

Giir et al disclose direct electrochemical conversion of carbon to electrical energy in a high temperature fuel cell (TITLE). Electrical power is generated from the fuel cell 10 by placing carbon fuel 12 in a temperature zone of the fuel compartment 20 and heating the carbon fuel 12 to a temperature that favors complete oxidation thereof (*this represents the thermocatalytic reactor*) (COL 2, lines 56-63). Giir et al discuss the use of a fluidized bed reactor 50 (COL 7, lines 49-52 & 60-65). Disclosed is the use of carbon 12 in the form of a finely divided powder (the particulate) (COL 7, lines 7-10). *It is noted that carbon fuel 12 itself serves as the carbon particulate in the fluidized bed reactor.*

Giir et al disclose that combustion occurs by two different reactions (COL 6, lines 18-22). It is disclosed that if carbon fuel 12 contains hydrogen (as an impurity), it can be removed by coking or desulfurization pretreatments, or fuel cells 10 may use the combustible impurities (the hydrogen) as well (COL 6, lines 26-37). *The examiner notes that these specific teachings implicitly calls for direct production of hydrogen and direct transporting thereof into the fuel cell.* The system comprises first and second heat sources 22 and 26 (COL 2, lines 41-48).



Art Unit: 1745

As to claim 22:

Giir et al discuss the use of a fluidized bed reactor 50 (COL 7, lines 49-52 & 60-65).

Thus, the present claims are anticipated.

***Claim Rejections - 35 USC § 103***

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

27. Claims 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krebs 2805177 in view of DuBose 6436562.

As to claim 21:

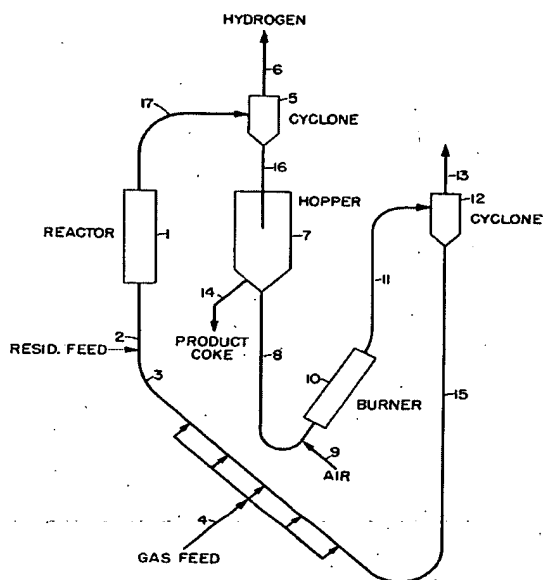
Krebs discloses production of hydrogen and coke (TITLE) by cracking of gaseous hydrocarbon over coke particles by the addition of heavy hydrocarbon oils (COL 1, lines 15-18) to form products consisting of hydrogen and carbon (COL 1, lines 19-22). Krebs uses a fluidized

Art Unit: 1745

bed reactor (COL 2, lines 25-28). Coke is in the form of a fluidized stream (COL 2, lines 29-31). In the reactor 1, hydrogen is evolved and the residuum feed is cracked and the carbon produced in the process is coated on the solid coke particles (COL 2, lines 30-35). The reaction products, hydrogen together with other vaporous products are sent through line 17 into cyclone 54 which is a solid/vapor separating device (COL 2, lines 33-38).

As illustrated in **Figure 1** below, solid/vapor separating devices 5 and 12 separates the hydrogen product from the remaining residual gas (COL 2, lines 36-38/ COL 2, lines 48-52). Thus, they recover hydrogen produced in the reactor. Lines 8, 11, 15 recycles the hydrogen-depleted gas to the reactor 1. Solid/vapor separating devices 5 and 12 separates the hydrogen product from the remaining residual gas. Burner 10 heats a portion of the carbon product contained in the first hydrogen-depleted gas in line 8 and 11.

Cokes is withdrawn from hopper 7 through standpipe 8 and transported into conduit 10, a transfer line burner (COL 2, lines 40-45). Krebs use the dusty carbon black product incorporated with the hard coke from the residue to form useful recoverable coke product (Col 1, lines 45-48).



Art Unit: 1745

As to claim 22:

Krebs uses a fluidized bed reactor (COL 2, lines 25-28).

As to claim 23:

Krebs use carbon black (COL 1, lines 45-48).

As to claim 24:

Solid/vapor separating devices 5 and 12 separates the hydrogen product from the remaining residual gas (COL 2, lines 36-38/ COL 2, lines 48-52). *Thus, they are hydrogen separation units.*

As to claim 25:

Hopper 7 represents the grinder.

Krebs discuss an apparatus for production of hydrogen and carbon. However, the preceding prior art reference fails to expressly disclose the specific fuel cell for generating electricity.

Concerning claims 21 and 26:

DuBose discloses fuel cell stream condition system (TITLE/ABSTRACT) for a proton exchange or polymer electrolyte membrane (PEM) fuel cell (COL 1, lines 42-47/ COL 7, line 20/ Col 8, lines 6-10 & 20/ Col 10, lines 8-10/ Col 13, lines 7-10/ COL 15, lines 20-25).

Of particular interest is the DuBose's teachings about the utility of fuel cells incorporating reformer technology to crack hydrocarbons to obtain hydrogen to feed the fuel cell (COL 1, lines 40-48).

In view of the above, it would have been readily apparent to a person possessing a level of ordinary skill in the art at the time the invention was made to integrate the specific fuel cell for

Art Unit: 1745

generating electricity of DuBose with the hydrogen production apparatus of Krebs as Dubose specifically teaches further development in the fuel cell field have included the development of fuel cells incorporating reformer technology to crack hydrocarbons to obtain hydrogen to feed the fuel cell (COL 1, lines 40-48). *Thus, DuBose readily envisions the integration of a hydrogen production apparatus using hydrocarbon cracking and fuel cells so as to generate electrochemical energy. Dubose is concerned with the source of hydrogen for fuel cells and directly mentions hydrocarbon cracking reformers for generation of hydrogen.*

28. Claims 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krebs 2805177 in view of the Poirier's publication "*Catalytic Decomposition of Natural Gas to Hydrogen for Fuel Cell Applications*".

As to claim 21:

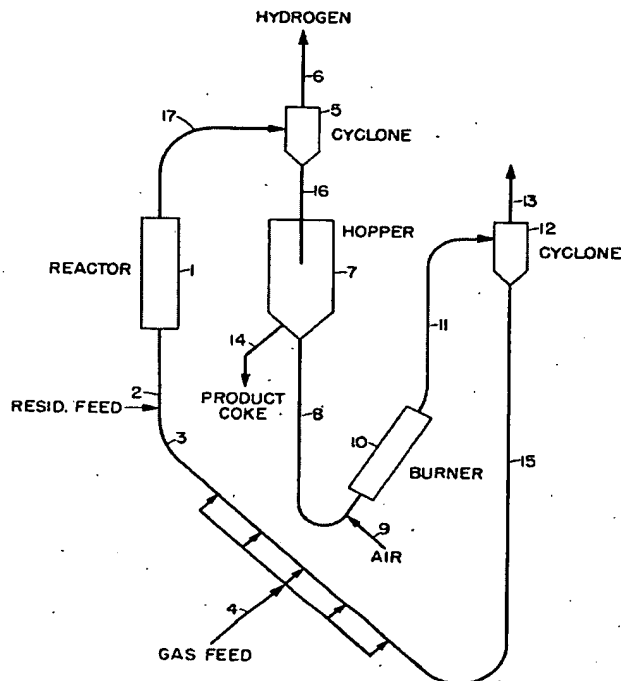
Krebs discloses production of hydrogen and coke (TITLE) by cracking of gaseous hydrocarbon over coke particles by the addition of heavy hydrocarbon oils (COL 1, lines 15-18) to form products consisting of hydrogen and carbon (COL 1, lines 19-22). Krebs uses a fluidized bed reactor (COL 2, lines 25-28). Coke is in the form of a fluidized stream (COL 2, lines 29-31). In the reactor 1, hydrogen is evolved and the residuum feed is cracked and the carbon produced in the process is coated on the solid coke particles (COL 2, lines 30-35). The reaction products, hydrogen together with other vaporous products are sent through line 17 into cyclone 54 which is a solid/vapor separating device (COL 2, lines 33-38).

As illustrated in **Figure 1** below, solid/vapor separating devices 5 and 12 separates the hydrogen product from the remaining residual gas (COL 2, lines 36-38/ COL 2, lines 48-52).

Art Unit: 1745

Thus, they recover hydrogen produced in the reactor. Lines 8, 11, 15 recycles the hydrogen-depleted gas to the reactor 1. Solid/vapor separating devices 5 and 12 separates the hydrogen product from the remaining residual gas. Burner 10 heats a portion of the carbon product contained in the first hydrogen-depleted gas in line 8 and 11.

Cokes is withdrawn from hopper 7 through standpipe 8 and transported into conduit 10, a transfer line burner (COL 2, lines 40-45). Krebs use the dusty carbon black product incorporated with the hard coke from the residue to form useful recoverable coke product (Col 1, lines 45-48).



As to claim 22:

Krebs uses a fluidized bed reactor (COL 2, lines 25-28).

As to claim 23:

Krebs use carbon black (COL 1, lines 45-48).

As to claim 24:

Art Unit: 1745

Solid/vapor separating devices 5 and 12 separates the hydrogen product from the remaining residual gas (COL 2, lines 36-38/ COL 2, lines 48-52). *Thus, they are hydrogen separation units.*

As to claim 25:

Hopper 7 represents the grinder.

Krebs discuss an apparatus for production of hydrogen and carbon. However, the preceding prior art reference fails to expressly disclose the specific fuel cell for generating electricity.

Poirier's publication reveals catalytic decomposition of natural gas to produce hydrogen for fuel cell applications (ABSTRACT).

In view of the above, it would have been obvious to a skilled artisan at the time the invention was made to integrate the specific fuel cell of the Poirier's publication with the hydrogen production apparatus of Krebs as the Poirier's publication directly discloses catalytic decomposition of natural gas to produce hydrogen for fuel cell applications. *Therefore, the Poirier's publication at once envisages the combined use of the catalytic decomposition reactor with a fuel cell, thereby for generation of energy.*

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

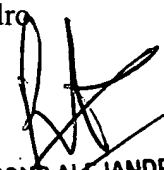


Art Unit: 1745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Raymond Alejandro  
Primary Examiner  
Art Unit 1745

  
**RAYMOND ALEJANDRO  
PRIMARY EXAMINER**